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CONDITION SURVEY, BEALE AIR FORCE BASE, CALIFORNIA.(U)
APR 73 P J VEDROS

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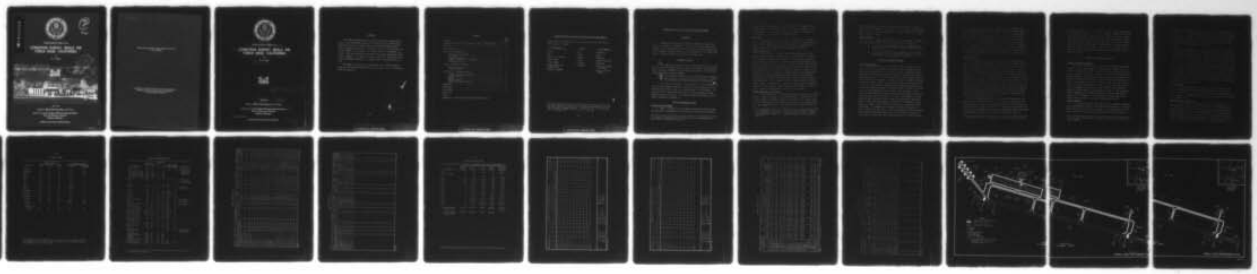

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MISCELLANEOUS PAPER S-73-18

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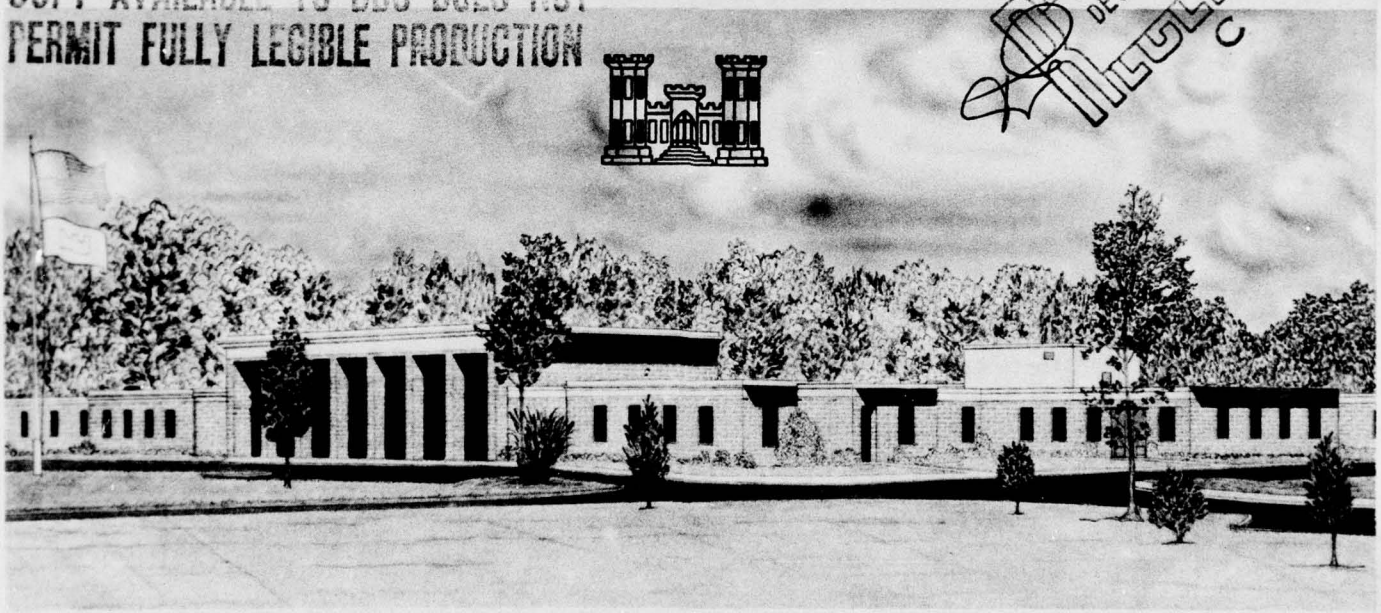
by

P. J. Vedros







April 1973

Sponsored by Office, Chief of Engineers, U. S. Army

Conducted by U. S. Army Engineer Waterways Experiment Station
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Vicksburg, Mississippi

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# CONDITION SURVEY, BEALE AIR FORCE BASE, CALIFORNIA

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26p.

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Vicksburg, Mississippi

ARMY-MRC VICKSBURG, MISS

## Foreword

The study reported herein was conducted under the general supervision of the Engineering Design Criteria Branch, Soils and Pavements Laboratory, of the U. S. Army Engineer Waterways Experiment Station (WES), Vicksburg, Mississippi. Personnel involved in the condition survey were Messrs. P. J. Vedros, S. J. Alford, and P. S. McCaffrey, Jr., of WES. This report was prepared by Mr. Vedros under the general supervision of Messrs. J. P. Sale, R. G. Ahlvin, and R. L. Hutchinson of the Soils and Pavements Laboratory. Appendix A was obtained from the Air Force.

COL Ernest D. Peixotto, CE, was Director of the WES during the conduct of the study and preparation of the report. Mr. F. R. Brown was Technical Director.

Contents

## Conversion Factors, British to Metric Units of Measurement

British units of measurement used in this report can be converted to metric units as follows:

| Multiply | By | To Obtain |
|---|---|---|
| inches | 2.54 | centimeters |
| feet | 0.3048 | meters |
| miles (U. S. statute) | 1.609344 | kilometers |
| square inches | 6.4516 | square centimeters |
| pounds (mass) | 0.45359237 | kilograms |
| pounds (force) per square inch | 0.6894757 | newtons per square centimeter |
| Fahrenheit degrees | * | Celsius or Kelvin degrees |

* To obtain Celsius (C) temperature readings from Fahrenheit (F) readings, use the following formula: $C = (5/9)(F - 32)$. To obtain Kelvin (K) readings, use: $K = (5/9)(F - 32) + 273.15$.

# CONDITION SURVEY, BEALE AIR FORCE BASE, CALIFORNIA

## Authority

1. Authority for conducting condition surveys at selected airfields is contained in amendment to FY 1972 RDTE Funding Authorization (MFS-MC-5, 16 February 1972), subject: "Air Force Airfield Pavement Research Program," from the Office, Chief of Engineers, U. S. Army, Directorate of Military Construction, dated 18 February 1972.

## Purpose and Scope

2. The purpose of this report is to present the results of a condition survey performed at Beale Air Force Base (BAFB), California, during 4-7 November 1972. The following two major areas of interest were considered in this condition survey.

(1) The structural condition of the primary airfield pavements.

(2) The condition of pavement repairs and the types of maintenance materials that have been used at this airfield.

3. This report is limited to a presentation of visual observations of the pavement conditions, discussion of these observations, and pertinent remarks with regard to the performance of the pavements. No physical tests of pavements, foundations, or patching materials were performed during this survey. The annual pavement maintenance plan for BAFB is presented in Appendix A.

## Pertinent Background Data

### Location and topography

4. BAFB is located in Yuba and Nevada Counties, between the Bear and Yuba Rivers, approximately 10 miles* east of Marysville, California.

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* A table of factors for converting British units of measurement to metric units is presented on page vii.

The western portion of the base is on a relatively flat plain of the eastern edge of the Sacramento Valley, with elevations ranging from 20 to 200 ft above mean sea level. This terrain develops eastwardly into the rapidly rising foothills of the Sierra Nevada.

Soil types

5. The subgrade soil is generally a clay having a low plasticity of the CL classification (according to the Unified Soil Classification System*), with varying amounts of sand and gravel. Some amounts of sandy silt (ML) and agglomerate are also found in the area.

Climatic conditions

6. The area has a semiarid climate characterized by hot, dry summers and mild winters. Climatic data (extracted from U. S. Weather Bureau records for Marysville, California) for a period of record of about 45 years indicate that the average daily mean temperatures range from 47 F in January to 79 F in July. Rainfall generally occurs during the winter months. An 81-year period of record indicates that the average annual rainfall is about 20 in., ranging from only a trace in July and August to 3.8 in. in December. Temperature and precipitation data for the past 5 years of record were also obtained from the weather squadron at BAFB. These records show that average daily mean temperatures range from 45 F in January to 81 F in July and that the average annual rainfall is about 21 in. Frost occurs infrequently and does not penetrate to any noticeable depth below the ground surface. Complete climatic data for the Marysville area are shown in table 1.

General description of airfield

7. In November 1972, the airfield facilities consisted of a NE-SW runway, a parallel taxiway, an operational apron, a transient and base (T and B) apron, two warm-up aprons, an alert facility, a hangar access apron with maintenance docks, connecting taxiways to the aprons and runway, and a power check pad. The runway was 300 ft wide and 12,000 ft

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* U. S. Department of Defense, "Unified Soil Classification System for Roads, Airfields, Embankments, and Foundations," Military Standard MIL-STD-619B, June 1968, U. S. Government Printing Office, Washington, D. C.

long; the operational apron with extension was 600 ft wide and 4625 ft long; the T and B apron was 300 ft wide and 750 ft long; and the taxiways were 75 ft wide, with 75-ft shoulders. A layout of the airfield pavements is shown in plate 1.

Previous reports

8. Previous reports concerning BAFB are listed below. Pertinent data were extracted from them for use in this condition survey.

a. Ohio River Division Laboratories, CE, "Condition Survey Report, Beale Air Force Base, California," May 1963, Cincinnati, Ohio.

b. U. S. Army Engineer District, Sacramento, CE, "Airfield Pavement Evaluation No. 1, Beale Air Force Base, California," November 1958, Sacramento, California

## History of Airfield Pavements

Construction history

9. The construction of the airfield pavements at BAFB was initiated in April 1957 and completed in January 1959. The pavements were designed in accordance with the Corps of Engineers Engineering Manual for Military Construction, Part XII, Chapter 3, dated May 1956 (now designated TM 5-824-3). All of the rigid pavements except the maintenance docks were designed to support a landing gear load of 240,000 lb carried on twin-twin wheels abreast, with each wheel having a tire contact area of 267 sq in. The center to center spacing between the twin wheels is 37 in. and between the centers of the inside wheels of each set of twins is 62 in. The maintenance docks, taxiway 7, and the hangar access aprons were designed using the same criteria and landing gear configurations for a gear load of 160,000 lb. In 1964, alert aprons 7-10 were added, and the same design criteria used for the previous aprons were used. In 1966, the power check pad, taxiway 9, the operational apron extension, taxiway 8, the extension to taxiway 10, and taxiway 11 were constructed. The pavement on the power check pad was designed as a type C traffic area (see plate 1), and the operational apron and taxiway pavements were designed as type A and C traffic areas for a gear load of 265,000 lb and the same landing gear configuration as that used for

the 1957 construction. In 1971, the large aircraft maintenance dock (1243) and taxiway were constructed, and the pavements were designed to support a landing gear load of 160,000 lb carried on twin-twin wheels abreast and the same wheel spacing and tire contact area as indicated previously for this loading. Details of the design and construction history of the airfield pavements (extracted from the reports referenced in paragraph 8) are presented in table 2. Pavement thicknesses, descriptions, and other details are presented in table 3. The physical property data indicated for the pavements constructed after 1958 are those values which were assigned for use in the design analysis for the various facilities.

Traffic history

10. A detailed traffic record was available for the period from July 1960 to December 1971. Traffic at the airfield at the present time consists of about 75 to 90 cycles* per month by B-52 aircraft and about 200 cycles per month by KC-135 aircraft. There are about 4 cycles per month of SR-71 aircraft traffic and a considerable number of touch-and-go operations by aircraft from other bases. It was reported that approximately 20-25 cycles per month are applied on the pavements by towed or taxied alert aircraft. The breakdown by percentage of use by various types aircraft is estimated as follows: KC-135, 25 percent; B-52, 20 percent; C-141, 10 percent; T-38, 13 percent; SR-71, 12 percent; and others, 20 percent. These percentages are only for use of the runway, since the C-141 aircraft is not stationed at BAFB and uses the runway only for touch-and-go operations. Eighty percent of the takeoffs are from the northeast end of the runway.

11. An estimated traffic record for the period July 1960 to December 1971 is presented in table 4. As is shown in this table, the reported number of cycles of operation for the B-52 and KC-135 has increased rapidly since the 1966 report. The touch-and-go operations are believed to be included in the figures presented after 1966, even though these operations do not meet the criteria for a normal cycle of

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* A cycle of traffic is a combination of one takeoff and one landing.

operation. For touch-and-go operations, the aircraft only touches down on the runway and then takes off again. However, assuming that the number of cycles in table 4 presented for B-52 operations for the period 1960-1966 is essentially correct and selecting a normal monthly figure of from 75 to 90 cycles for the 1967-1971 period, then it is estimated that there have been approximately 12,000-14,000 cycles applied on the pavements at BAFB. These figures do not take into account the alert movements, which would account for approximately 3,000-4,000 cycles of additional traffic.

## Conditions of Pavement Surfaces

### Pavement inspection procedure

12. The following procedure was used in conducting the pavement inspection of the rigid pavements. Representative features were selected for detailed inspection. The features were then inspected slab* by slab, and the defects were recorded. The locations of the individual pavement features, the inspection starting points, and the directions in which the pavements were inspected (shown by arrows) are indicated in plate 1. The results of the rigid pavement survey for those features inspected in detail are presented in table 5. This table shows a quantitative breakdown of the various types of defects and a condition rating for each pavement feature inspected in detail. The procedures used for determining the condition rating of a pavement are given in Appendix III of Department of the Army Technical Manual TM-5-827-3, "Rigid Airfield Pavement Evaluation," dated September 1965.

### General condition

13. All rigid pavements were found to be in excellent condition. Some surface defects were noted that were more predominant in the runway and taxiway 6 than in the other pavements. The surface defects in the runway consisted of light map cracking in most of the slabs, light

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* A slab is the smallest unit, containing no joints, of a given pavement feature.

shrinkage cracking, and small pop-outs or spalls of the grooves in the pavement surfaces. Some patching of small pop-outs and spalls (reportedly caused by decaying wood fragments or disintegrating foreign matter) had been accomplished in the past and reported on in the 1962 survey. The minor defects observed on taxiway 6 were usually spalls on the transverse joints that were relatively small.

Runway

14. The central 5 lanes (150 ft) and the length of the runway (excluding 625 ft at each end) contained longitudinal grooves on approximately 3/4-in. spacings. This grooving was accomplished during the period October 1967 to March 1968. During this survey, it was observed that a number of the grooved slabs contained a small area of spall (from 1-1/2 in. to 3 in. in diameter) where the groove had broken off. This did not appear to present an operational problem, since the loose chips had been removed by sweeping. The rubber deposits had recently been removed from the northeast end of the runway, and the surface was in excellent condition. The shrinkage cracking reported in the 1962 report was observed to occur in lanes 5 and 7 about 5000-6000 ft from the runway ends. However, it was very difficult to detect this fine shrinkage cracking in the grooved surface.

Taxiway system

15. The taxiway system was found to be in excellent condition, with the predominant defect being the minor spalling on transverse joints of taxiways 1 and 6. A poor drainage condition existed on taxiway 3 (adjacent to the runway), where water was standing on the pavement and shoulder area.

Aprons and alert facilities

16. Blast fences are installed at the east and west edges of the operational apron to form 17 parking slots. At the time of this survey, all but three of the parking positions were being occupied by B-52 and KC-135 aircraft. Parking positions 4, 7, and 15 were thoroughly inspected, and the only major defect recorded was transverse cracking. Four slabs in parking position 4, two slabs in 7, and three slabs in 14 contained a transverse crack. Some slight pitting or

erosion of the surface of the concrete was noted, usually behind the inboard engine of the B-52 aircraft. Three aircraft were parked along the north edge of the north warm-up apron, and two aircraft were parked along the south edge of the south warm-up apron. No surface defects were noted in these areas; however, these two aprons could not be inspected in detail.

17. The T and B apron and taxiway 10 (adjacent to this apron) were in excellent condition, with no defects observed in the taxiway and only two transverse spalls noted in the apron. The addition to the T and B apron, which included taxiway 11, was in excellent condition, with no defects observed. This area is used by taxiing SR-71 aircraft that are parked in shelters adjacent to the west edge of the apron addition.

18. Alert stubs 1-5, which are used for parking KC-135 aircraft, were occupied at the time of this survey; stubs 7-10, which are used for B-52 aircraft, were vacant. The only defects observed in these vacant areas were one or two spalls in each parking stub.

19. The power check pad and taxiway were inspected, and no defects of any type were observed in the pavement surfaces.

## Maintenance

20. Maintenance of the rigid pavements has consisted of spall repairs, joint resealing, spot joint repairs, and rubber deposit removal. The annual pavements maintenance plan for BAFB was obtained from the Air Force and is presented as Appendix A. This maintenance plan indicates the type and amount of maintenance that has been performed through November 1972. The in-house maintenance costs for FY 1971 and 1972 were as follows:

| | FY 1971 | FY 1972 |
|---|---|---|
| Labor | $19,728 | $13,581 |
| Materials | 28,239 | 16,662 |
| Other | -- | 9,336 |
| Total | $47,967 | $39,579 |

21. As stated previously, patching of small pop-outs and spalls and some spot resealing of joints have been required. Epoxy mortar and a latex patching material have been used for these repairs. These types of patches on the runway were inspected during this survey, and they appeared to be performing satisfactorily.

## Evaluation

22. The latest evaluation report for BAFB was prepared in 1958 (see paragraph 8b). Because some changes in gear configurations and methods of evaluation have been made since that time, a new evaluation table (table 6) has been prepared. The physical properties of the materials as determined in previous evaluations and from design analyses reports for pavements constructed after 1958 were used for determination of the load-carrying capabilities of the pavements.

## Conclusions

23. The following remarks summarize the findings of the 1972 inspection:

a. All portland cement concrete pavements are in excellent condition.

b. Pavements with grooves are spalling slightly in these grooves; however, this development does not present an operational hazard, since the pavements are being swept to pick up loose debris.

c. No maintenance of these spalled grooved areas appears to be necessary at present.

d. Water ponds at a few locations on the airfield after a rain, particularly on taxiway 3.

Table 1

Climatic Data*

| Month | Average Daily Temperature, F | | | Precipitation, in. | |
|---|---|---|---|---|---|
| | Max | Min | Mean | Rainfall | Snowfall |
| January | 54 | 37 | 47 | 3.6 | 0.1 |
| February | 60 | 41 | 51 | 3.4 | Trace |
| March | 66 | 44 | 56 | 2.8 | 0.1 |
| April | 72 | 47 | 61 | 1.4 | -- |
| May | 80 | 52 | 67 | 0.8 | -- |
| June | 89 | 57 | 74 | 0.3 | -- |
| July | 96 | 60 | 79 | Trace | -- |
| August | 95 | 59 | 77 | Trace | -- |
| September | 89 | 55 | 73 | 0.5 | -- |
| October | 78 | 49 | 64 | 1.1 | -- |
| November | 66 | 41 | 55 | 2.3 | -- |
| December | 55 | 38 | 48 | 3.8 | -- |
| Annual | 75 | 48 | 63 | 20.0 | 0.2 |
| Number of years of record | 43 | 44 | 79 | 81 | 21 |

* Extracted from U. S. Weather Bureau records for Marysville, California, about 10 miles west of BAFB.

Table 2

Airfield Construction History

| Designation | Dimensions Length ft | Dimensions Width ft | Pavement Thickness in. | Pavement Type | Construction Year | Construction Agency | Remarks |
|---|---|---|---|---|---|---|---|
| Primary runway | 12,000 | 300 | | | 1957 | CE* | See plate 1 for pavement configuration at runway ends |
| Sta 140+00 to 145+00 | 5,000 | 200 | 25 | PCC | | | |
| Sta 255+00 to 260+00 | 500 | 200 | 25 | PCC | | | |
| Sta 140+00 to 150+00 | 1,000 | Varies | 22 | PCC | | | |
| Sta 250+00 to 260+00 | 1,000 | Varies | 22 | PCC | | | |
| Sta 150+00 to 250+00 | 10,000 | 300 | 20 | PCC | | | |
| Taxiway 6 | 12,000 | 75 | 22-25 | PCC | 1957-58 | CE | Referred to as east taxiway in 1963 report |
| Taxiway 1 | 3,560 | 75 | 22 | PCC | 1958 | CE | |
| Taxiway 2 | 2,100 | 75 | 22-25 | PCC | 1958 | CE | East end was taxiway 6 |
| Taxiway 3 | 1,250 | 75 | 22 | PCC | 1958 | CE | |
| Taxiway 4 | 1,250 | 75 | 22 | PCC | 1957-58 | CE | |
| Taxiway 5 | 1,250 | 75 | 22-25 | PCC | 1957-58 | CE | |
| Taxiway 7 | 950 | 75 | 22-25 | PCC | 1958 | CE | |
| Taxiway 7 (east end) | 850 | 75 | 17 | PCC | 1958 | CE | Was taxiway 10 |
| Taxiway 10 | 2,575 | 75 | 20-25 | PCC | 1958 | CE | Was taxiway 8 |
| Taxiway 10 (south end) | 875 | 75 | 18-22 | PCC | 1958 | CE | Was taxiway 9 |
| Operational apron | 2,575 | 600 | 20 | PCC | 1958 | CE | |
| T and B flight apron | 750 | 300 | 18 | PCC | 1958 | CE | |
| North warm-up apron | Varies | 225 | 22 | PCC | 1957-58 | CE | |
| South warm-up apron | Varies | 225 | 22 | PCC | 1957-58 | CE | |
| Alert aprons (1-5) | Varies | Varies | 22 | PCC | 1958 | CE | |
| Hangar access apron | 515 | 350 | 17 | PCC | 1958 | CE | |
| Maintenance docks (1073-1076) | 200 | 95 | 11-17 | PCC | 1958 | CE | |
| Alert aprons (7-10) | Varies | Varies | 20 | PCC | 1964 | CE | |
| Power check pad | 400 | 100 | 18 | PCC | 1966 | CE | |
| Taxiway 9 | 875± | 50 | 18 | PCC | 1966 | CE | |
| Operational apron extension | | | | | 1966 | CE | See plate 1 for apron layout |
| Southeast end | 1,100 | 300 | 18 | PCC | | | |
| West side addition | 1,950 | 225 | 18 | PCC | | | |
| Taxiway 8 | 650 | 75 | 22 | PCC | | | |
| Taxiway 11 | 2,000 | 75 | 22 | PCC | | | |
| Taxiway 10 addition | 1,175 | 75 | 22 | PCC | | | |
| Maintenance dock (1243) and taxiway | 200<br>Varies | 125<br>75 | 9-15<br>15 | PCC<br>PCC | 1971<br>1971 | CE<br>CE | |

* CE denotes Corps of Engineers.

Table 3

SUMMARY OF PHYSICAL PROPERTY DATA

| FACILITY Beale AFB | | | | OVERLAY PAVEMENT | | | PAVEMENT | | | BASE | | | SUBGRADE | | GENERAL CONDITION OF AREA CONSIDERED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FACILITY NUMBER AND IDENTIFICATION | | LENGTH FT | WIDTH FT | THICK. IN. | DESCRIPTION | FLEX. STR PSI | THICK. IN. | DESCRIPTION | FLEX. STR PSI | THICK. IN. | CLASSIFICATION | CBR OR K | CLASSIFICATION | CBR OR K | |
| R1A<br>R5A | Primary runway, 1st 500 ft each end; sta 140+00 to 145+00 and sta 255+00 to 260+00 | 500 | 100 to 200 | | | | 25 | Portland cement concrete | 665 | 6 | Sandy gravel | | Sandy clayey gravel to sandy clay | 150 | Excellent |
| R2B<br>R4B | Primary runway, 2nd 500 ft each end; sta 145+00 to 150+00 and sta 250+00 to 255+00 | 500 | 300 | | | | 22 | Portland cement concrete | 665 | 6 | Sandy gravel | | Sandy clayey gravel to sandy clay | 150 | Excellent |
| R3C | Primary runway interior, sta 150+00 to 255+00 | 10,000 | 300 | | | | 20 | Portland cement concrete | 665 | 6 | Sandy gravel | | Silty sandy gravel to sandy clay | 150 | Excellent |
| T2A<br>T7A | Taxiway 2 | 2,100 | 75 | | | | 25 | Portland cement concrete | 620 | 6 | Sandy gravel | | Sandy gravel to sandy silt | 200 | Excellent |
| T3A | Taxiway 6 | 11,975 | 75 | | | | 22-25-22 | Portland cement concrete | 665 | 6 | Sandy gravel | | Agglomerate to sandy clay | 200 | Excellent |
| T6A | Taxiway 5 | 1,250 | 75 | | | | 25 | Portland cement concrete | 640 | 6 | Sandy gravel | | Sandy clay to sandy silt | 150 | Excellent |
| T8A | Taxiway 7 | 850 | 75 | | | | 22-25-22 | Portland cement concrete | 610 | 6 | Sandy gravel | | Sandy clay to sandy gravel | 350 | Excellent |
| T9A | Taxiway 10 | 2,575 | 75 | | | | 20-25-20 | Portland cement concrete | 610 | 6 | Sandy gravel | | Sandy clay to sandy gravel | 350 | Excellent |
| T10A | Taxiway 10 | 950 | 75 | | | | 18-22-18 | Portland cement concrete | 830 | 6 | Sandy gravel | | Sandy clayey gravel to sandy silt | 225 | Excellent |
| T12A<br>T13A<br>T14A | Taxiway 10<br>Taxiway 8<br>Taxiway 11 | 1,175<br>625<br>2,000 | 75<br>75<br>75 | | | | 18-22-18 | Portland cement concrete | 680 | 6 | Stabilized aggregate | | Sandy clayey gravel to sandy silt | 200 | Excellent |
| T1B | Taxiway 1 | 3,560 | 75 | | | | 22 | Portland cement concrete | 680 | 6 | Sandy gravel | | Sandy clay | 350 | Excellent |
| T11B | Taxiway 7 | 850 | 75 | | | | 17 | Portland cement concrete | 670 | 6 | Sandy gravel | | Clayey gravelly | 225 | Excellent |
| A1B | Operational apron | 2,500 | 600 | | | | 20 | Portland cement concrete | 610 | 6 | Sandy gravel | | Sandy clay to sandy gravel | 350 | Excellent |
| A9B | Operational apron extension | varies | varies | | | | 18 | Portland cement concrete | 680 | 6 | Stabilized aggregate | | Sandy clayey gravel to sandy silt | 200 | Excellent |
| A2B | T and B apron | 750 | 300 | | | | 18 | Portland cement concrete | 830 | 6 | Sandy gravel | | Sandy clayey gravel to sandy silt | 225 | Excellent |
| A7B | Alert stubs 1-5 | 200 | 100 | | | | 22 | Portland cement concrete | 700 | 6 | Sandy gravel | | Sandy gravel to sandy clay | 350 | Excellent |
| A8B | Alert stubs 7-10 | 200 | 75 | | | | 20 | Portland cement concrete | 680 | 6 | Sandy gravel | | Sandy gravel to sandy clay | 350 | Excellent |
| A5B | South warm-up apron | 1,200 | 300 | | | | 22 | Portland cement concrete | 620 | 6 | Sandy gravel | | Sandy gravel to sandy silt | 200 | Excellent |
| A6B | North warm-up apron | 1,200 | 300 | | | | 22 | Portland cement concrete | 640 | 6 | Sandy gravel | | Sandy clay to sandy silt | 150 | Excellent |

WES FORM 1000
MAR 1958

Table 3 (Continued)

SUMMARY OF PHYSICAL PROPERTY DATA

| Beale AFB FACILITY | | | | OVERLAY PAVEMENT | | | PAVEMENT | | | BASE | | | SUBGRADE | | GENERAL CONDITION OF AREA CONSIDERED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FACILITY NUMBER AND IDENTIFICATION | | LENGTH FT | WIDTH FT | THICK. IN. | DESCRIPTION | FLEX. STR PSI | THICK. IN. | DESCRIPTION | FLEX. STR PSI | THICK. IN. | CLASSIFICATION | CBR OR K | CLASSIFICATION | CBR OR K | |
| A3B | Hangar access apron | 515 | 425 | | | | 17 | Portland cement concrete | 670 | 6 | Sandy gravel | | Clayey gravelly sand to sandy clay | 225 | Excellent |
| A4B | Maintenance docks 1073, 1074, 1075, and 1076 | 200 | 95 | | | | 17 center 11 sides | Portland cement concrete | 670 | 6 | Sandy gravel | | Clayey gravelly sand to sandy clay | 225 | Excellent |
| A10B | Maintenance dock | 500± | 75 | | | | 15 | Portland cement concrete | 680 | 6 | Stabilized aggregate | | Sandy clay to sandy gravel | 200 | Excellent |
| T4C T5C | Taxiways 3 and 4 | 1,250 | 75 | | | | 22 | Portland cement concrete | 585 | 6 | Sandy gravel | | Agglomerate to sandy clay | 200 | Excellent |
| T15C | Taxiway 9 | 700 | 75 | | | | 18 | Portland cement concrete | 680 | 6 | Stabilized aggregate | | Sandy clay to sandy silt | 200 | Excellent |
| A11C | Power check pad | 550 | 150 | | | | 18 and 6 | Portland cement concrete | 680 | 6 | Stabilized aggregate | | Sandy clay to sandy silt | 200 | Excellent |

WES FORM 1000
MAR 1950

(2 of 2 sheets)

Table 4

Aircraft Traffic Data

| Year | Cycles of Operation per Type of Aircraft | | | | |
|---|---|---|---|---|---|
| | Medium Bomber | Heavy Bomber | Tanker | Heavy Cargo | All Other Aircraft |
| 1960 (Jul to Dec) | 34 | 708 | 1,810 | 564 | 17,052 |
| 1961 | 60 | 1,155 | 1,617 | 359 | 6,357 |
| 1962 | 390 | 1,018 | 1,250 | 375 | 5,280 |
| 1963 | 616 | 1,008 | 910 | 384 | 160 |
| 1964 | 385 | 1,063 | 1,300 | 297 | 2,106 |
| 1965 | 4 | 1,296 | 1,624 | 80 | 1,954 |
| 1966 | 2 | 1,150 | 1,425 | 85 | 2,120 |
| 1967 | 0 | 6,682 | 26,736 | 1,676 | 7,218 |
| 1968 | 0 | 7,510 | 30,036 | 1,876 | 12,436 |
| 1969 | 0 | 17,979 | 16,275 | 1,972 | 12,362 |
| 1970 | 0 | 8,466 | 10,584 | 4,230 | 22,876 |
| 1971 | 0 | 8,568 | 10,708 | 4,284 | 24,838 |
| Average takeoff weight (lb) | 190,000 | 450,000 | 260,000 | 200,000 | 7,000 to 71,000 |
| Average landing weight (lb) | 175,000 | 230,000 | 180,000 | 120,000 | -- |

Table 5

DATE: November 1972

## SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Beale AFB

| FEATURE NO. | FEATURE DESIGNATION | SLAB SIZE FT | APPROX NO. OF SLABS | PAVE. THICK IN. | NO. OF SLABS CONTAINING INDICATED DEFECTS | | | | | | | | | | | | | | | | | % OF SLABS NO DEFECTS | % OF SLABS NO MAJOR DEFECTS | CONDITION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | I | — | \ | Δ | ✱ | K | ~ | S | J | ↓ | J | ⊕ | M | P | O | C | D | | | |
| R1A | Primary runway, 1st 500 ft, NE end | 25 by 25 | 144 | 25 | | | | | | | 3 | | | | | | 9 | | 2 | | | 90 | 100 | Excellent |
| R2B | Primary runway, 2nd 500 ft, NE end | 25 by 25 | 336 | 22 | | | | | | | 8 | | | | | | | | 1 | | | 97 | 100 | Excellent |
| R3C | Primary runway interior | 25 by 25 | 4800 | 20 | 15 | | | | | | 23 | | 6 | | | | | | 7 | | | 99 | 99 | Excellent |
| R4B | Primary runway, 2nd 500 ft, SW end | 25 by 25 | 336 | 22 | | | | | | | | | 1 | | | | | | 1 | | | 99 | 100 | Excellent |
| R5A | Primary runway, 1st 500 ft, SW end | 25 by 25 | 144 | 25 | | | | | | | | | | | | | | | | | | 100 | 100 | Excellent |
| T2A | Taxiway 2 | 25 by 25 | 270 | 25 | | | | | | | | | | | | | | | 1 | | | 99 | 100 | Excellent |
| T3A | Taxiway 6 | 25 by 25 | 1466 | 22 and 25 | | | | | | | 1 | | 14 | | 2 | | 2 | | 1 | | | 99 | 100 | Excellent |
| T6A | Taxiway 5 | 25 by 25 | 227 | 25 | | | | | | | 1 | | 2 | | | | | | | | | 99 | 100 | Excellent |
| T7A | Taxiway 2 apron | 25 by 25 | 63 | 25 | | | | | | | | | | | | | | | | | | 100 | 100 | Excellent |
| T9A | Taxiway 10 | 25 by 25 | 412 | 20 and 25 | | | | | | | | | 4 | | | | | | | | | 99 | 100 | Excellent |

REMARKS:

LEGEND:

| | | | | | |
|---|---|---|---|---|---|
| I | LONGITUDINAL CRACK | ~ | SHRINKAGE CRACK | M | MAP CRACKING |
| — | TRANSVERSE CRACK | S | SCALING | P | PUMPING JOINT |
| \ | DIAGONAL CRACK | J | SPALL ON TRANSVERSE JOINT | O | POP-OUT |
| Δ | CORNER BREAK | ↓ | SPALL ON LONGITUDINAL JOINT | C | UNCONTROLLED CONTRACTION CRACK |
| ✱ | SHATTERED SLAB | J | CORNER SPALL | D | "D" CRACKING |
| K | KEYED JOINT FAILURE | ⊕ | SETTLEMENT | | |

WES FORM NO. 2004
JUN 1972

Table 5 (Continued)

DATE: November 1972

SUMMARY OF DATA - RIGID PAVEMENT CONDITION SURVEY

AIRFIELD: Beale AFB

| FEATURE | | SLAB SIZE FT | APPROX NO. OF SLABS | PAVE. THICK. IN. | NO. OF SLABS CONTAINING INDICATED DEFECTS | | | | | | | | | | | | | | | | | % OF SLABS NO DEFECTS | % OF SLABS NO MAJOR DEFECTS | CONDITION |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. | DESIGNATION | | | | I | — | \ | Δ | * | K | ~ | S | J | ↓ | J | ⊕ | M | P | O | C | D | | | |
| T8A | Taxiway 7 | 25 by 25 | 102 | 22 and 25 | | | | | | | | | | | | | | | | | | 100 | 100 | Excellent |
| T1B | Taxiway 1 | 25 by 25 | 570 | 22 | | 1 | | | | | | | 7 | 1 | | | | | 3 | | | 98 | 99 | Excellent |
| T4C | Taxiway 3 | 25 by 25 | 310 | 22 | | | | | | | | | 3 | | 2 | | | | | | | 98 | 100 | Excellent |
| T5C | Taxiway 4 | 25 by 25 | 310 | 22 | | | | | | | | | | | | | | | 1 | | | 99 | 100 | Excellent |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | |

REMARKS:

LEGEND:

| | | | | | |
|---|---|---|---|---|---|
| I | LONGITUDINAL CRACK | ~ | SHRINKAGE CRACK | M | MAP CRACKING |
| — | TRANSVERSE CRACK | S | SCALING | P | PUMPING JOINT |
| \ | DIAGONAL CRACK | J | SPALL ON TRANSVERSE JOINT | O | POP-OUT |
| Δ | CORNER BREAK | ↓ | SPALL ON LONGITUDINAL JOINT | C | UNCONTROLLED CONTRACTION CRACK |
| * | SHATTERED SLAB | J | CORNER SPALL | D | "D" CRACKING |
| K | KEYED JOINT FAILURE | ⊕ | SETTLEMENT | | |

WES FORM NO. 2004
JUN 1972

(2 of 2 sheets)

Table 6

SUMMARY OF PAVEMENT EVALUATION

| NAME OF AIRFIELD: Beale AFB<br>DATE OF EVALUATION<br>MONTH: November YR: 1972 | | | LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TRICYCLE ARRANGEMENT | | | | | | | | | BICYCLE | REMARKS |
| FEATURE | | PAVEMENT OPERATIONAL USE | SINGLE 100-PSI TIRE PRESSURE | SINGLE 100-SQ-IN. CONTACT AREA | SINGLE 241-SQ-IN. CONTACT AREA | TW 28-IN. C-C 226-SQ-IN. CONTACT AREA EACH TIRE | SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA | TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE | TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE | TWIN TANDEM 33 IN. × 46 IN. 208-SQ-IN. CONTACT AREA EACH TIRE | C-5A GEAR CONFIGURATION | TWIN TWIN SPCG 37-62-37 267-SQ-IN. CONTACT AREA EACH TIRE | |
| NO. | DESIGNATION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| R1A<br>R5A | Primary runway, 1st 500 ft, each end | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 530,000 | |
| R2B<br>R4B | Primary runway, 2nd 500 ft, each end | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 470,000 | |
| R3C | Primary runway interior | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 550,000 | |
| T2A<br>T7A | Taxiway 2 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 530,000 | |
| T3A | Taxiway 6 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 380,000+ | 380,000+ | 800,000+ | 570,000 | |
| T6A | Taxiway 5 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 510,000 | |
| T8A<br>T9A | Taxiway 7<br>Taxiway 10 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 600,000+ | |
| T10A | Taxiway 10 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 600,000+ | |
| T12A<br>T13A<br>T14A | Taxiway 10<br>Taxiway 8<br>Taxiway 11 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 490,000 | |
| T1B | Taxiway 1 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 600,000+ | |
| T11B<br>A3B<br>A4B | Taxiway 7<br>Hangar access apron<br>Maintenance docks 1073, 1074, 1075, and 1076 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 275,000 | 330,000+ | 380,000+ | 800,000+ | 370,000 | |
| A1B | Operational apron | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 520,000 | |
| A9B | Operational apron extension | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 295,000 | 330,000+ | 380,000+ | 800,000+ | 390,000 | |
| Note: + sign denotes allowable gross loading greater than maximum gross weight of any existing aircraft having indicated gear configuration. | | | | | | | | | | | | | |

WES FORM NO. 999 JUNE 1972 EDITION OF AUG 1960 IS OBSOLETE.

Table 6 (Continued)

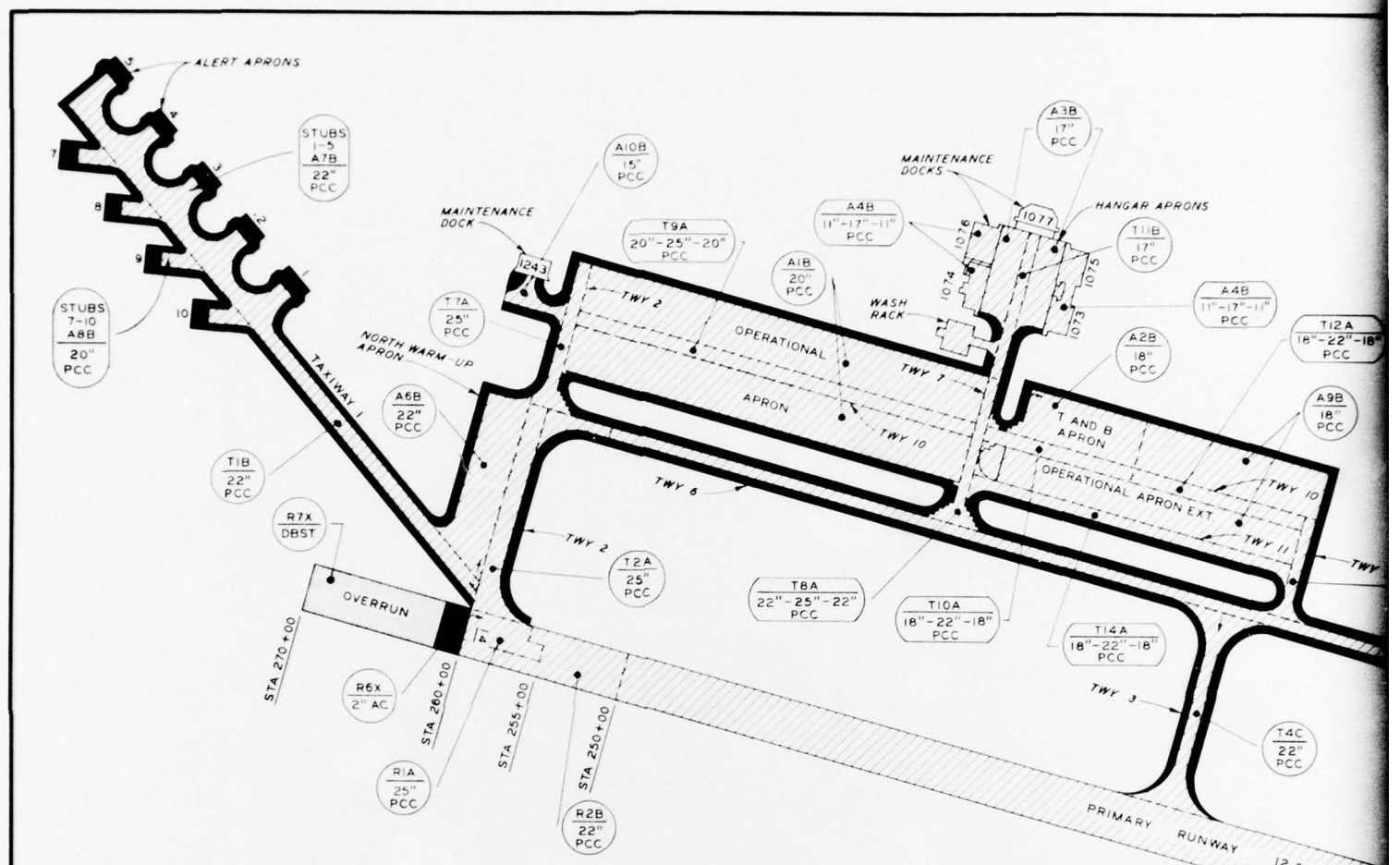
SUMMARY OF PAVEMENT EVALUATION

| NAME OF AIRFIELD: Beale AFB<br>DATE OF EVALUATION<br>MONTH November YR: 1972 | | | LOAD-CARRYING CAPACITY IN LB OF GROSS PLANE LOAD FOR INDICATED LANDING GEAR TYPES AND CONFIGURATIONS | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | TRICYCLE ARRANGEMENT | | | | | | | | | BICYCLE | |
| FEATURE | | PAVEMENT OPERATIONAL USE | SINGLE 100-PSI TIRE PRESSURE | SINGLE 100-SQ-IN. CONTACT AREA | SINGLE 241-SQ-IN. CONTACT AREA | TW 28-IN. C-C 278-SQ-IN. CONTACT AREA EACH TIRE | SINGLE TANDEM 60-IN. SPACING 400-SQ-IN. CONTACT AREA | TW 37-IN. C-C 267-SQ-IN. CONTACT AREA EACH TIRE | TW 44-IN. C-C 630-SQ-IN. CONTACT AREA EACH TIRE | TWIN TANDEM 33 IN. × 48 IN. 208 SQ-IN CONTACT AREA EACH TIRE | C-5A GEAR CONFIGURATION | TWIN TWIN SPCG 37-62-37 257-SQ-IN. CONTACT AREA EACH TIRE | REMARKS |
| NO. | DESIGNATION | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | |
| A2B | T and B apron | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 500,000 | |
| A7B | Alert stubs 1-5 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 600,000+ | |
| A8B | Alert stubs 7-10 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 580,000 | |
| A5B | South warm-up apron | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 470,000 | |
| A6B | North warm-up apron | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 460,000 | |
| A10B | Maintenance dock | Capacity | 140,000 | 85,000+ | 155,000+ | 200,000 | 200,000+ | 225,000 | 285,000 | 380,000+ | 800,000+ | 300,000 | |
| T4C T5C | Taxiways 3 and 4 | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 590,000 | |
| T15C A11C | Taxiway 9 Power check pad | Capacity | 155,000+ | 85,000+ | 155,000+ | 220,000+ | 200,000+ | 330,000+ | 330,000+ | 380,000+ | 800,000+ | 520,000 | |

WES FORM NO. 999
JUNE 1972

EDITION OF AUG 1960 IS OBSOLETE.

(2 of 2 sheets)




## LEGEND

PORTLAND CEMENT CONCRETE (PCC)
DOUBLE BITUMINOUS SURFACE TREATMENT (DBST)
BLAST PAVEMENT (AC-NON TRAFFIC)

R1X / 25" PCC ← FEATURE DESIGNATION (SEE NOTE 1)
← SURFACE PAVEMENT THICKNESS AND TYPE

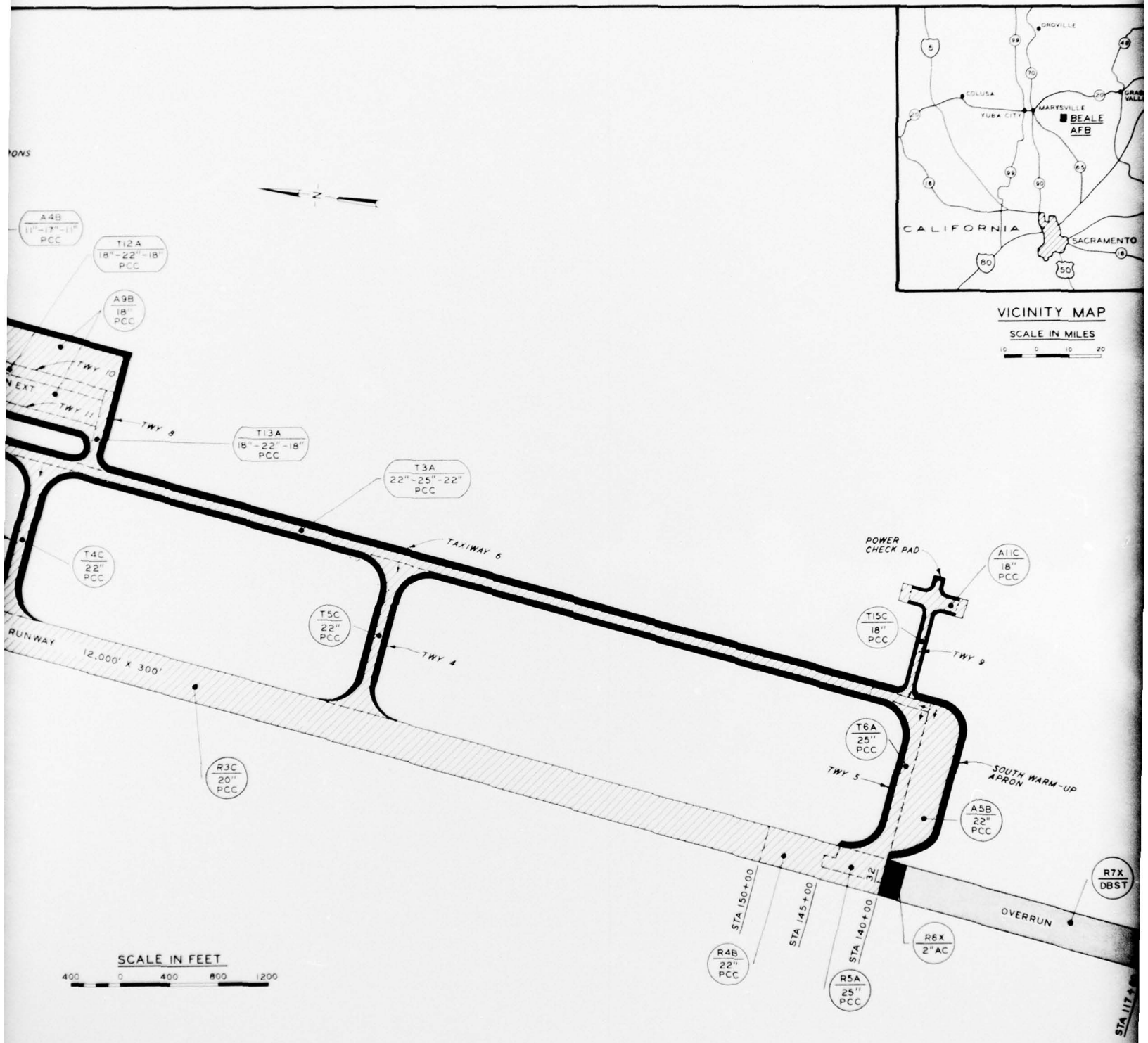
TYPE OF FEATURE
R-RUNWAY
T-TAXIWAY
A-APRON

TYPE TRAFFIC AREA (SEE NOTE 2)
A-A TYPE TRAFFIC AREA
B-B TYPE TRAFFIC AREA
C-C TYPE TRAFFIC AREA
X-NO TRAFFIC TYPE ASSIGNED

→ DIRECTION OF SURVEY

NOTES: 1. FEATURE DESIGNATION DENOTES TYPE OF FEATURE, NUMBER OF FEATURE FOR GIVEN TYPE, AND TYPE TRAFFIC AREA.
2. TRAFFIC AREA DESIGNATIONS ARE BASED ON HEAVY LOAD CRITERIA.

SCALE
400 0







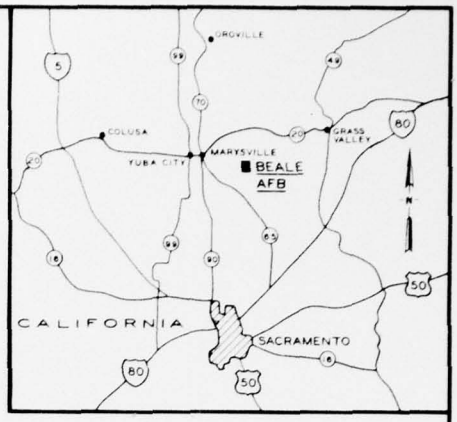
VICINITY MAP

SCALE IN MILES

10 0 10 20

BEALE AFB

AIRFIELD LAYOUT AND PAVEMENT PLA




VICINITY MAP

SCALE IN MILES

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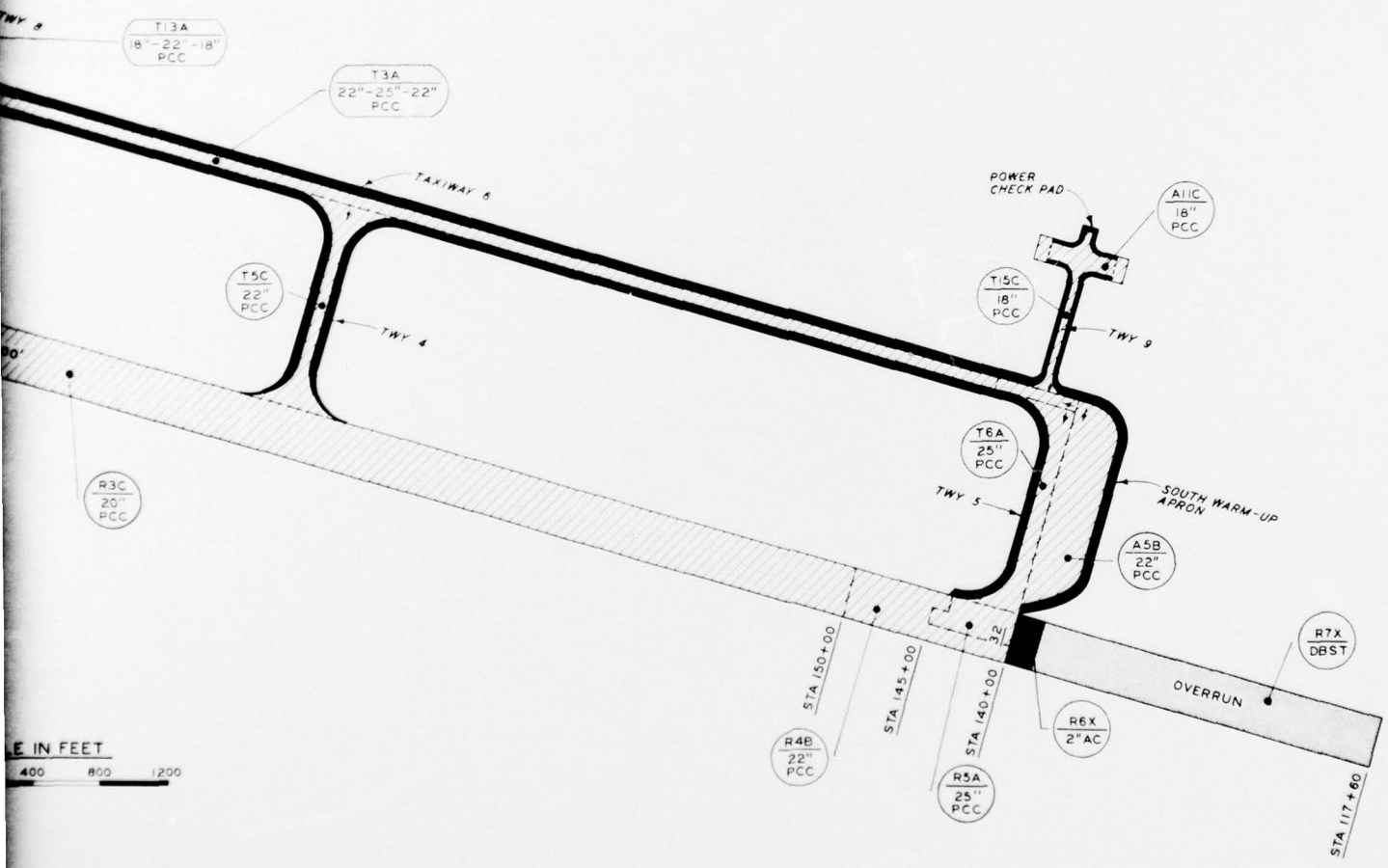


BEALE AFB

# AIRFIELD LAYOUT AND PAVEMENT PLAN

PLATE 1

3

Appendix A: BAFB Annual Pavement Maintenance Plan

| No. | Facility | Pavement Description | Type | Year Constructed | Existing Condition | Inspected | Priority | Maintenance and Repair History |
|---|---|---|---|---|---|---|---|---|
| 1 | 8205 | Runway, primary, 12,000 by 300 ft, 20- to 25-in. PCC, 6-in. base, 24-in. select fill | Rigid heavy | 1957 | S | D-PG SA-EC | I-A | Spalled joints repaired, 1966 |
| 2 | 8210 | Taxiway 1, 3856 by 75 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 | S | Q-PG Q-EC | I-B | Joints sealed, 1965 |
| 3 | 8210 | Taxiway 2, 2000 by 75 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | |
| 4 | 8210 | Taxiway 3, 1250 by 75 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | |
| 5 | 8210 | Taxiway 4, 1250 by 75 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 6 | 8210 | Taxiway 5, 1370 by 75 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 7 | 8210 | Taxiway 6, 11,200 by 75 ft, 22- to 25-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 1958 | S | SA-PG SA-EC | I-A | Joints sealed, 1965 |
| 8 | 8210 | Taxiway 7, 1900 by 75 ft, 25-in. PCC, 6-in. base, 24-in. select fill | Rigid heavy | 1958 | S | SA-PG SA-PG | I-B | Joints sealed, 1965 |
| 9 | 8210 | Taxiway 8, 650 by 75 ft, 25-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 10 | 8210 | Taxiway 9, 950 by 75 ft, 18-in. PCC, 6-in. base, 25-ft shoulder, 2-in. AC | Rigid medium | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 11 | 8210 | Taxiway 10, 3000 by 75 ft, 22- to 25-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 12 | 8265 | Alert aprons, east, five 120 by 200 ft each of 20-in. PCC, 6-in. base, 60-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 13 | 8265 | Alert aprons, west, four 100 by 200 ft each of 22-in. PCC, 6-in. base, 50-ft shoulder, 2-in. AC | Rigid heavy | 1964 1965 | S | SA-PG SA-EC | I-B | |
| 14 | 8285 | Apron, south warm-up, 1100 by 300 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 15 | 8280 | Overrun blast pad, south, 150 by 300 ft, 2-in. AC, 6-in. base, 24-in. select fill | Rigid heavy | 1957 1958 | S | Q-PG Q-EC | I-B | |
| 16 | 8280 | Runway, south overrun, 2100 by 300 ft, 6-in. base, 15-in. subbase, 24-in. select fill | Flexible double bituminous treatment, heavy-load design | 1965 | S | A-PG A-EC | I-B | |
| 17 | 8285 | Apron, north warm-up, 1000 by 250 ft, 22-in. PCC, 6-in. base, 24-in. select fill, 50-ft shoulder, 2-in. AC | Rigid heavy | 1957 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1962 |
| 18 | 8280 | Overrun blast pad, north, 150 by 300 ft, 2-in. AC, 6-in. base. 24-in. select fill | Rigid heavy | 1957 1958 | S | Q-PG Q-EC | I-B | |
| 19 | 8280 | Runway, north overrun, 850 by 300 ft, 6-in. base, 15-in. subbase, 24-in. select fill | Flexible double bituminous treatment, heavy-load design | 1958 | S | A-PG A-EC | I-B | |
| 20 | 8280 | Apron, north operational, 2550 by 300 ft, 2600 by 300 ft, 18-in. PCC, 6-in. base, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965* |
| 21 | 8280 | Apron, transit, 750 by 300 ft, 22-in. PCC, 6-in. base, 50-ft shoulder, 2-in. AC | Rigid heavy | 1958 | S | SA-PG SA-EC | I-B | Joints sealed, 1965 |
| 22 | 8265 | Apron, dock access, 400 by 550 ft, 17-in. PCC, 6-in. base, 24-in. select fill | Rigid heavy | 1958 | S | Q-PG Q-EC | I-B | Joints sealed, 1965 |
| 23 | 8265 | Washrack, 200 by 200 ft, 14-in. PCC, 6-in. base, 6-in. subbase | Rigid heavy | 1961 | S | SA-PG SA-EC | I-C | |
| 24 | 8265 | Apron, south operational, 800 by 300 ft, 900 by 675 ft, 22-in. PCC, 6-in. base, 50-ft shoulder, 2-in. AC | Rigid heavy | 1965 | S | SA-PG SA-EC | I-B | Spalled joints repaired, 1968 |
| 25 | 8282 | Power check pad, 18-in. PCC, 6-in. base, 25-ft shoulder, 2-in. AC | Rigid medium | 1965 | S | Q-PG Q-EC | I-A | |

Note: S - Satisfactory.
* Maintenance and repair proposed: Reseal joints, pits 15, 16, and 17, FY 1974.